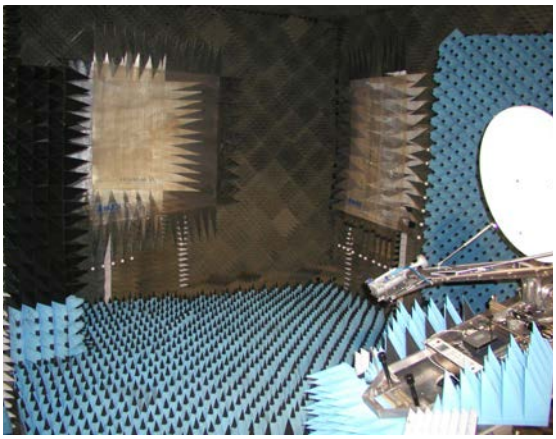
ND SATCOM

Compact Antenna and RCS Test Range

Near- and Far Field Measurements with High Frequency Range

The Compact Antenna and RCS Test Range has been designed for antenna, radome and RCS measurements under plane wave conditions. The far field is achieved by two parabolic reflectors, which allow accurate measurements in a test zone (quiet zone) with diameter of 2.4 m and a frequency range from 2 GHz up to 100 GHz. The possibility of direct illumination provides real time measurements for frequencies lower than 2 GHz. The 14 m x 7 m x 6 m anechoic chamber is fully lined with pyramidal foam and high power absorbers.



High Resolution

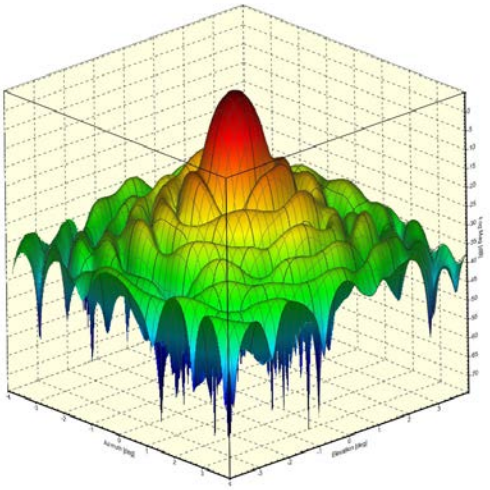
A 6-axis control unit with 0.03° accuracy assures high resolution measurements. The antenna is mounted on a rotor to change polarization easily. For RCS measurements a foam lined tower can be used to minimize undesirable wave propagation effects and to guarantee accurate measurements.

Easy Data Handling

Measurements are performed with the Antenna and Radar Cross Section Measurement System (ARCS) of March Microwave Systems B.V. and the Analysis, Graphics and ISAR tool provide many options for post-processing. A dual computer system allows acquisition and processing simultaneously in a room next to the anechoic chamber.

Powerful Hardware

To transmit and receive signals a Rhode & Schwarz ZVA 40 is used. Fast sweep time and high measurement speed with less than 3.5 µs per test point enlarge the performance of the system. An attenuator/switch driver handles the polarization of the transmitted signal automatically. Waveguides instead of coaxial cables minimize the loss of antenna-received signals.



For customer requests please contact:

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TECHNICAL SPECIFICATIONS

DIMENSIONS

Test Chamber:	14 m x 7 m x 6 m
Subreflector:	3.2 m x 3.8 m
Main Reflector:	4.8 m x 3.8 m
Test Zone Diameter:	1.6 m (2.4 m)

FREQUENCY RANGE:

2 – 100 GHz
(< 2 GHz possible on request)

AMPLITUDE RIPPLE:

< 0.7 dB pp

PHASE RIPPLE:

< 7° pp

SENSITIVITY

(detectable cross section, S/N > 10 dB):

-75 dBsm	2 GHz
-70 dBsm	18 GHz
-65 dBsm	40 GHz
-50 dBsm	95 GHz

DYNAMIC RANGE:

> 90 dB	2 GHz – 40 GHz
> 75 dB	95 GHz

POSITIONER

Elevation over azimuth rotor and additional model tower with polarization head, mounted on motorized slide.

6-Axis Control Unit

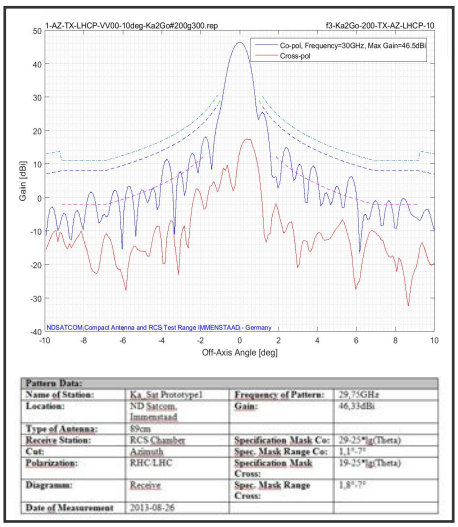
Max. Load Az.-Rotor:	2250 kg
Bending Moment:	6622 Nm
Max. Load Model Tower:	200 kg
Bending Moment:	2650 Nm
Accuracy:	+/- 0.03°

RF-EQUIPMENT

Rhode & Schwarz ZVA 40
HP 11713A Attenuator/Switch Driver
HP 8349B Microwave Amplifier

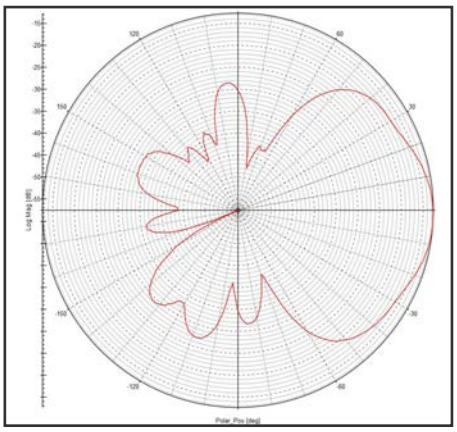
DISPLAYS

Cartesian plots, Polar plots,
Contour Plots
Waterfall plots
Etc.

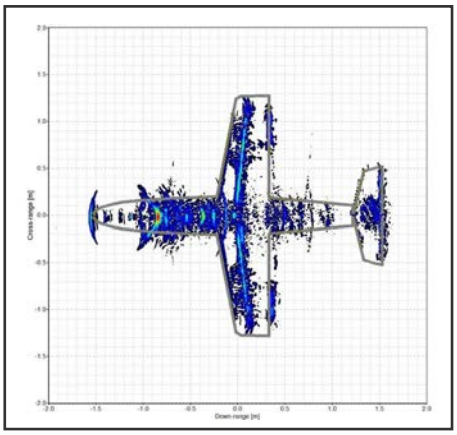


Pattern Data:			
Name of Station:	Ka_Sat Prototype1	Frequency of Pattern:	29,75GHz
Location:	ND Satcom, Immenstaad	Gain:	46,33dBi
Type of Antenna:	85cm		
Receive Station:	RCS Chamber	Specification Mask Co:	29-25*lg(Theta)
Cut:	Azimuth	Spec. Mask Range Co:	1,1°,7°
Polarization:	RHC/LHC	Specification Mask Cross:	19-25*lg(Theta)
Diagramm:	Receive	Spec. Mask Range Cross:	1,8°,7°
Date of Measurement	2013-08-26		

Final Antenna Report



360° Polar Plot of Antenna Measurements



ISAR Post-Processing of RCS Measurement

www.ndsatcom.com

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